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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,946	12/04/2003	Jeffrey R. Amadon	FIS920030072US2 (16405A)	7376
23389	7590	07/06/2004	EXAMINER BEREZNY, NEMA O	
SCULLY SCOTT MURPHY & PRESSER, PC 400 GARDEN CITY PLAZA GARDEN CITY, NY 11530			ART UNIT 2813	PAPER NUMBER

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/727,946

Applicant(s)

AMADON ET AL.

Examiner

Nema O Berezny

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12042003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

Claims 15-18 are objected to because of the following informalities: Claim 15 line 2, delete "step" and insert --steps-- thereto. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Den Broek et al. (6,097,276). Van Den Broek discloses a method of fabricating a thin film resistor comprising: forming at least two resistor materials over one another (Fig.1A-4B el.27,28), each resistor material having a different temperature coefficient of resistivity wherein the different temperature coefficients of resistivity provide an effective temperature coefficient of resistivity that is substantially 0 ppm/ degree C (col.4 lines 45-59); and patterning the at least two resistor materials to provide a thin film resistor having a selected dimension (Fig.1C, 3B) [**claim 11**]. Van Den Broek also discloses forming a patterned insulating material (Fig.2 el.22) between a portion of the at least two resistor materials (el.25,26) [**claim 12**]; connecting the at least two resistor materials to

wiring levels (el.23,24) of an interconnect structure [claim 13]; and wherein the connecting occurs through metal vias and lines (Fig.3B) [claim 14].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segawa et al. (6,603,172) in view of Van Den Broek et al. (6,097,276). Segawa discloses a method integrating a thin film resistor with a metal-insulator-metal capacitor comprising the steps of: forming a first resistor material (Figs.5a-5e el.4a) having a first temperature coefficient of resistivity (TCR) on a surface of a substrate (el.1); forming an insulating material (el.5b) atop the first resistor material; patterning the insulating material to at least provide a capacitor dielectric on a portion of the first resistor material (Fig.5c); forming a second resistor material (el.6) having a second temperature coefficient of resistivity which is different from the first temperature coefficient of resistivity over the first resistor material and the capacitor dielectric (Fig.5c); and patterning the first and second resistor materials to provide a thin film resistor and a capacitor, said capacitor including at least the capacitor dielectric (col.10 lines 38-46). However, Segawa does not disclose a first TCR and a different second TCR that comprise an effective TCR that is substantially 0 ppm/degree C. Segawa would look to

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one such as Van Den Broek for a resistor with as little a change in resistance as possible due to temperature changes because Van Den Broek discloses that the first temperature coefficient of resistivity for a first resistor material (Fig.3B el.27) and the second temperature coefficient of resistivity for a second resistor material (el.28) provide an effective coefficient of resistivity that is substantially 0 ppm/ degree C (col.4 lines 45-59). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the zero effective CTR of Van Den Broek with the method of Segawa in order to manufacture a resistor that changes its resistance as little as possible with changes in temperature (Van Den Broek - col.1 lines 11-22).

Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segawa in view of Van Den Broek as applied to claim 15 above, and further in view of Harada et al. (5,643,834). Segawa and Van Den Broek do not disclose resistor materials comprising TiN and TaN. However, Segawa and Van Den Broek would look to one such as Harada for the desired resistivity because Harada discloses wherein the at least two resistor materials are different materials selected from the group consisting of Ta, TaN, Ti, TiN, W, and WN, and wherein the first resistor material is TiN and the second resistor material is TaN (col.3 lines 5-9). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the TiN and TaN resistor material of Harada with the method of Segawa in view of Van Den Broek in order to obtain the desired resistivity (Harada – col.3 lines 5-9).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nema O Berezny whose telephone number is (571) 272-1686. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NB

Nema Berezny
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